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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ZERVIGON, RUDY	
ART UNIT	**PAPER NUMBER**
1763	

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14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/658,784	Applicant(s) RAAIJMAKERS ET AL.	
	Examiner Rudy Zervigon	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,18-22,57,60,61 and 65-116* is/are pending in the application.

4a) Of the above claim(s) *23-56* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,18-22,57,60,61 and 65-116* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 May 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *07 November 2002* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. The indicated allowability of claims 7-13, 22, and 61 is withdrawn in view of the newly discovered reference to Hiroaki Saeki (USPat. 5,223,001) and Tanaka et al (USPat. 6,234,107). Rejections based on the newly cited reference follow.

2. The amendment after final rejection filed on October 4, 2002 has been entered.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign mentioned in the description: "206" (sealing portion, Page 16, lines 17-19 – Figure 11A). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign not mentioned in the description: "406" (Figure 11A). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 98 is objected to because of the following informalities: Claim 98 depends from itself. Appropriate correction is required. It is presumed in this action that claim 98 depends from claim 97.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1, 2, 4-8, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Saeki (USPat. 5,223,001). Saeki teaches a load-lock chamber (1, Figures 1-4, and 6) that defines at least partially a first/lower/[first housing] chamber (13/14 interface space) and an auxiliary chamber / upper portion (36 – "(small space)"; column 8, lines 22-25) removably connected to the first / lower chamber (44, Figure 6). The load lock comprises:

i. A first port (13) and a second port (14), the first and second ports for moving a wafer (4) into and out of the load lock ("carry-in and carry-out"; column 8, lines 9-15)

ii. an elevator plate/ movable platform (38; column 8, lines 20-30) including an attached wafer carrier (item between 38 and 4)

iii. the wafer carrier being moveable between a first position where the wafer carrier is in the first chamber (lower chamber) and a second position where the wafer carrier is in the auxiliary chamber and the elevator plate substantially seals (column 8, lines 24-33) the auxiliary chamber from the first chamber, wherein the first and second ports open into the first chamber when the elevator plate is in the second position

iv. the load-lock is formed at least in part by a first housing - item 28, Figure 2A of the present application corresponds to the lower portion that is bolted to item 41, Figure 6 of the Saeki patent

v. the load-lock is formed partially by an auxiliary housing portion - item 30, Figure 2A of the present application corresponds to item 41, Figure 6 of the Saeki patent

vi. the auxiliary chamber, or upper chamber, includes inner walls made of aluminum and are adapted to withstand HF gas as an auxiliary fluid (Figure 6; column 8, lines 49-54; "cleaned gas", column 6, lines 64-68). The specific gas supplied to the upper chamber is an intended use of the apparatus. Saeki is inherently capable of supplying the desired gas.

vii. A substrate handling chamber (30, Figure 5) selectively communicating with the load lock chamber (1, Figure 5, 6) through the first port

viii. At least one process chamber (15, Figure 5; column 9, lines 56-69) selectively communicating with the substrate handling chamber through the first and second ports

ix. Saeki teaches the wafer carrier being movable between an outside position where the wafer carrier is outside the load lock and an inside position where the wafer carrier is inside the load lock – Figure 2, 4

7. Claims 9-13, 57, 60, 66, 68, 70-73, 75, 76, 96, 100-102, 107-109, and 113-116 are rejected under 35 U.S.C. 102(e) as being anticipated by Tanaka et al (USPat. 6,234,107). Tanaka teaches a load-lock chamber (12; Figures 6, 7; column 6, lines 45-69) that defines at least partially a first chamber / lower chamber (60) and an auxiliary chamber / upper portion (52) that is removably attached to the first chamber/lower chamber (see differing hatching of figures 4-7). The load lock comprises:

x. A first port (10) and a second port (14'), the first and second ports for moving a wafer (W) into and out of the load lock (column 7, lines 19-53)

xi. an elevator plate/ movable platform (55; column 7, lines 7-18)

xii. the wafer carrier being moveable between a first position where the wafer carrier is in the first chamber (lower chamber) and a second position where the wafer carrier is in the auxiliary chamber and the elevator plate substantially seals ("hermetically closed space 52" column 7, lines 10-18; column 6, lines 59-65) the auxiliary chamber from the first chamber

xiii. the first port (10 of item 12, Figure 6, 7) communicates with a wafer handling module (16, Figure 6, 1)

xiv. the second port (14' of item 12, Figure 6, 7) communicates with a clean room via a wafer handling module (4, Figure 1)

xv. A treatment gas injector (58, Figure 6,7) for injecting a treatment gas. The specific gas is an intended use of the apparatus. Tanaka is inherently capable of supplying the desired gas.

xvi. At least one process chamber (1-3, Figure 1; column 3, lines 20-38) selectively communicating with the substrate handling chamber

xvii. Tanaka teaches heating elements in the auxiliary chamber (42, Figure 5).

8. Claims 61, 67, 103, and 110 are rejected under 35 U.S.C. 102(e) as being anticipated by Tanaka et al (USPat. 6,234,107). Tanaka teaches a load-lock chamber (12; Figures 6, 7; column 6, lines 45-69) that defines a lower portion (60) and an upper portion (52). The load lock comprises:

xviii. A first port (14') and a second port (10), the first and second ports for moving a wafer (W) into and out of the load lock (column 7, lines 19-53)

xix. a movable platform (55; column 7, lines 7-18) including a wafer carrier (56)

xx. the wafer carrier being moveable between a first position where the wafer carrier is in the first chamber (lower chamber) and a second position where the wafer carrier is in the auxiliary chamber and the elevator plate substantially seals ("hermetically closed space 52" column 7, lines 10-18; column 6, lines 59-65) the auxiliary chamber from the first chamber

xxi. A substrate handling chamber (16, Figure 1,6) selectively communicating with the load lock chamber (12, Figure 1) through the first port

xxii. At least one process chamber (1-3, Figure 1; column 3, lines 20-38) selectively communicating with the substrate handling chamber

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 3, 20-22 86-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki (USPat. 5,223,001) in view of Kondo et al (JP06-275703). Saeki is discussed above. Saeki does not teach a heater in the elevator plate or that the wafer carrier is adapted for receiving only a pair of substrates. Kondo teaches a load lock room (10, Figure 1) including a wafer carrier (7) adapted for receiving a plurality of substrates and an elevator plate (14) with a heater (20). Motivation for Saeki to use Kondo's wafer carrier and elevator plate heater is for sizing the number of wafers held to thus optimize the throughput for the load lock and for pre-heating the substrates prior to subsequent processing for using Kondo's heater ([0018] of computer translation). It is well established that dimensional differences in apparatus would be obvious to change by one of ordinary skill in the art at the time the invention was made (Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for Saeki to carry 2 wafers as taught by the use of Kondo's wafer carrier that has an elevator plate heater.

11. Claims 14, 65, 69, 77-85, 97, 98, 104, 105, 111, and 112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (USPat. 6,234,107) in view of Kondo et al (JP06-275703). Tanaka is discussed above. However, Tanaka does not teach a wafer carrier adapted for receiving only a pair of substrates on plural shelves. Kondo teaches a load lock room (10, Figure 1) including a wafer carrier (7) adapted for receiving a plurality of substrates on a plurality of shelves, an elevator plate (14), and a heater (20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Tanaka to use Kondo's wafer carrier with plural elevator plates / shelves and an elevator plate heater.

Motivation for Tanaka to use Kondo's with plural elevator plates / shelves and an elevator plate heater is for a larger throughput in production for using the wafer carrier and for pre-heating the substrates prior to subsequent processing for using Kondo's heater ([0018] of computer translation).

12. Claims 74, 99, and 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (USPat. 6,234,107) in view of Saeki (USPat. 5,223,001) and Fujiura et al (USPat. 5,071,460). Both Tanaka and Saeki are discussed above. Tanaka does not teach his auxiliary chamber, or upper chamber, including inner walls that are adapted to withstand an auxiliary fluid that is HF vapor. Saeki does teach, as discussed above, his auxiliary chamber or upper chamber, including inner walls that made from aluminum and are thus adapted to withstand an auxiliary fluid that is HF vapor as demonstrated by Fujiura aluminum chamber construction withstanding HF vapor (column 8, lines 51-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Tanaka to make his load-lock chamber from Saeki's taught aluminum material as demonstrated by Fujiura.

Motivation for Tanaka to make his load-lock chamber from Saeki's taught aluminum material is for the well known durability against fluorine containing vapors as demonstrated by Fujiura.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPat. 6,096,135; 4,895,107; 6,283,060; 6,264,804.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.

JEFFRIE R. LUND
PRIMARY EXAMINER